

STROM ET AL. - 10/799,575
Attorney Docket: 044182-0308721

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method of obtaining planarity measurements in a probe card analysis system; said method comprising:
computing planarity effects due to fiducial plate deflection;
combining planarity effects due to probe card deflection and due to probe card fixture deflection; and
responsive to said computing and said combining, calculating a load compensated planarity for said probe card.
2. (Original) The method of claim 1 further comprising accounting for planarity effects due to stage deflection and wherein said calculating is further responsive to said accounting.
3. (Previously presented) The method of claim 2, wherein said accounting comprises utilizing a distance sensor proximate to said stage deflection.
4. (Original) The method of claim 1 wherein said computing comprises utilizing an optical metrology technique.
5. (Original) The method of claim 4 wherein said utilizing an optical metrology technique comprises:
acquiring image data of a fiducial on said fiducial plate;
responsive to said acquiring, identifying deflection data values representative of a deflection of said fiducial plate; and
responsive to said identifying, providing correction data values enabling a first order correction of said deflection.

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6. (Original) The method of claim 5 wherein said utilizing an optical metrology technique further comprises:

further identifying rate data values representative of a rate of deflection of said fiducial plate; and
responsive to said further identifying, providing additional correction data values enabling a second order correction of said deflection.

7. (Original) The method of claim 1 wherein said combining comprises:
obtaining measurements of optical planarity and electrical planarity for said probe card;
measuring fiducial plate deflection at first electrical contact; and
responsive to said obtaining and said measuring, computing a combined deflection value for said probe card and said probe card fixture.

8. (Withdrawn) A method of obtaining a combined deflection measurement for deflections of a probe card and a probe card fixture; said method comprising:
obtaining measurements of optical planarity and measurements of electrical planarity for all non-bussed probes;
identifying fiducial plate deflection at first electrical contact at all non-bussed probe locations; and
responsive to said obtaining and said identifying, computing a combined deflection attributable to deflection of said probe card and deflection of said probe card fixture.

9. (Withdrawn) The method of claim 8 further comprising acquiring stage deflection measurements at proximal sensor locations and wherein said computing is further responsive to said acquiring.

10. (Withdrawn) The method of claim 9 wherein said stage deflection measurements are assumed to be zero.

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11. (Withdrawn) The method of claim 8 wherein said identifying fiducial plate deflection comprises:

- selectively positioning an imaging apparatus to acquire optical data at a selected non-bussed probe location;
- acquiring said optical data when a non-bussed probe makes contact with said fiducial plate at said selected non-bussed probe location; and
- responsive to said acquiring, measuring said fiducial plate deflection at said selected non-bussed probe location.

12. (Withdrawn) The method of claim 11 wherein said identifying fiducial plate deflection further comprises selectively repeating said selectively positioning, said acquiring, and said measuring for a different selected non-bussed probe location.

13. (Withdrawn) The method of claim 8 wherein said identifying fiducial plate deflection comprises computing said fiducial plate deflection as a function of full overtravel plate deflection at a particular probe location and of optical planarity.

14. (Withdrawn) The method of claim 13 wherein said computing comprises utilizing a two dimensional interpolation calculation.

15. (Withdrawn) A computer readable medium encoded with data and instructions for obtaining planarity measurements with respect to a probe card analysis system; said data and said instructions causing an apparatus executing said instructions to:

- compute planarity effects due to fiducial plate deflection;
- combine planarity effects due to probe card deflection and due to probe card fixture deflection; and
- calculate a load compensated planarity for said probe card.

16. (Withdrawn) The computer readable medium of claim 15 further encoded with data and instructions; said data and said instructions further causing an apparatus executing said instructions to account for planarity effects due to stage deflection.

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17. (Withdrawn) The computer readable medium of claim 15 further encoded with data and instructions; said data and said instructions further causing an apparatus executing said instructions to compute said planarity effects due to fiducial plate deflection utilizing an optical metrology data processing technique.

18. (Withdrawn) The computer readable medium of claim 17 further encoded with data and instructions; said data and said instructions further causing an apparatus executing said instructions to execute said optical metrology data processing technique by:

acquiring image data of a fiducial on said fiducial plate;
responsive to said acquiring, identifying deflection data values representative of a deflection of said fiducial plate; and
responsive to said identifying, providing correction data values enabling a first order correction of said deflection.

19. (Withdrawn) The computer readable medium of claim 18 further encoded with data and instructions; said data and said instructions further causing an apparatus executing said instructions to execute said optical metrology data processing technique by:

further identifying rate data values representative of a rate of deflection of said fiducial plate; and
responsive to said further identifying, providing additional correction data values enabling a second order correction of said deflection.